

## **RAW SEQUENCE LISTING**

**The Biotechnology Systems Branch of the Scientific and Technical  
Information Center (STIC) no errors detected.**

Application Serial Number: 10/087,573B  
Source: 1FW16  
Date Processed by STIC: 2/13/06

# ***ENTERED***



IFW16

## RAW SEQUENCE LISTING

DATE: 02/13/2006

PATENT APPLICATION: US/10/087,573B

TIME: 10:56:05

Input Set : E:\Substitute Seq Listing I- 2001.004 US.txt

Output Set: N:\CRF4\02132006\J087573B.raw

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3 <110> APPLICANT: Schetters, Theodorus P. M.
4      Carcy, Bernard P. D.
5      Drakulovski, Pascal R.
6      Gorenflot, Andre F.
8 <120> TITLE OF INVENTION: Babesia canis vaccine
10 <130> FILE REFERENCE: I-2001.004 US
12 <140> CURRENT APPLICATION NUMBER: 10/087,573B
13 <141> CURRENT FILING DATE: 2002-02-28
15 <150> PRIOR APPLICATION NUMBER: EP 01200816.5
16 <151> PRIOR FILING DATE: 2001-03-06
18 <160> NUMBER OF SEQ ID NOS: 17
20 <210> SEQ ID NO: 1
21 <211> LENGTH: 1135
22 <212> TYPE: DNA
23 <213> ORGANISM: Babesia canis
25 <220> FEATURE:
26 <221> NAME/KEY: CDS
27 <222> LOCATION: (75)..(500)
29 <400> SEQUENCE: 1
30 gaattcggca cgagccctgc tataactgtgc tttgcaacta actccatcgt aataatttaa 60
32 tataataata aagg atg gag tcg aca tca aca acg acc aac ttt gtt gcc 110
33      Met Glu Ser Thr Ser Thr Thr Thr Asn Phe Val Ala
34      1          5          10
36 gag aac cgt ccc acc ttt ggt gag acg ttt gat gtg atg agg gaa gct 158
37 Glu Asn Arg Pro Thr Phe Gly Glu Thr Phe Asp Val Met Arg Glu Ala
38      15          20          25
40 ttg ctt cgt gta aag tcc tct gaa cgc ttg gca atg ctc aga gcg ctt 206
41 Leu Leu Arg Val Lys Ser Ser Glu Arg Leu Ala Met Leu Arg Ala Leu
42      30          35          40
44 gca gga atg tgc ggt cac cgc gtc ctt cct ggc act ggt gct tct gcg 254
45 Ala Gly Met Cys Gly His Arg Val Leu Pro Gly Thr Gly Ala Ser Ala
46 45          50          55          60
48 ata gcg gca acg gta acc cca aag ggg gct tcg atg aag ctt aaa cca 302
49 Ile Ala Ala Thr Val Thr Pro Lys Gly Ala Ser Met Lys Leu Lys Pro
50      65          70          75
52 ccg cgt ccg cag tca acg aag tct ccg gag ctc agg gag ctg tca cgg 350
53 Pro Arg Pro Gln Ser Thr Lys Ser Pro Glu Leu Arg Glu Leu Ser Arg
54      80          85          90
56 aag att cgc gaa atg aat aag act ata agt cag gaa tca gct cgg gta 398
57 Lys Ile Arg Glu Met Asn Lys Thr Ile Ser Gln Glu Ser Ala Arg Val
58      95          100          105
60 aac cac cgg ttg ccg gaa ggc cac cct ctc tta gag aag cgg gca gaa 446
61 Asn His Arg Leu Pro Glu Gly His Pro Leu Leu Glu Lys Arg Ala Glu

```

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62      110      115      120
64 tat ttt cgt cac ctt aga tct ctt aag agc caa gga gtc aat aga ctc 494
65 Tyr Phe Arg His Leu Arg Ser Leu Lys Ser Gln Gly Val Asn Arg Leu
66 125      130      135      140
68 atc taa gaaggcacta cgtaggtacc gtgcctctat gaggaatacg aaccgactag 550
69 Ile
71 tgcacaatag acgaccagtt ctaccaaagg tagagcctga ctctaattcta ccattcggcc 610
73 agcgacggag tgcgatgaca acgtggaatc ttagaccacg ccggacgggt tatccgtcaa 670
75 atgggtacttt ggcagttacg gaactcctga tctcgattta tagatcaaac ttctacacct 730
77 tgaaggtggt cgaggaaggg agatgtacgt gctgcaacac ccataaggag caagctttgc 790
79 tactcctatc cgtttacctc cagctatatc gtgcactgca ctcagttgga aggtctgtat 850
81 tcgtagaata ctgcaaaacc aggatatgctg tcgaggcacg cctcaccgga ctacgtccga 910
83 ggggtgaccct aacgggctgc tgaactaggt tcagccagcg cttcctgtga gtatgtcatt 970
85 ccgggtcctt ccggggcccg gccagtttgc actgggtgtag gtttgcccta ctagagtact 1030
87 tgcgacgccg aagcgccctcc gttcaaaaaga acgcgcaagc cctagcagag aaatgcgagg 1090
89 gcatgactct tcgagtcaaa aaaaaaaaaa aaaaaaaaac tcgag 1135
92 <210> SEQ ID NO: 2
93 <211> LENGTH: 141
94 <212> TYPE: PRT
95 <213> ORGANISM: Babesia canis
97 <400> SEQUENCE: 2
98 Met Glu Ser Thr Ser Thr Thr Thr Asn Phe Val Ala Glu Asn Arg Pro
99 1 5 10 15
101 Thr Phe Gly Glu Thr Phe Asp Val Met Arg Glu Ala Leu Leu Arg Val
102 20 25 30
104 Lys Ser Ser Glu Arg Leu Ala Met Leu Arg Ala Leu Ala Gly Met Cys
105 35 40 45
107 Gly His Arg Val Leu Pro Gly Thr Gly Ala Ser Ala Ile Ala Ala Thr
108 50 55 60
110 Val Thr Pro Lys Gly Ala Ser Met Lys Leu Lys Pro Pro Arg Pro Gln
111 65 70 75 80
113 Ser Thr Lys Ser Pro Glu Leu Arg Glu Leu Ser Arg Lys Ile Arg Glu
114 85 90 95
116 Met Asn Lys Thr Ile Ser Gln Glu Ser Ala Arg Val Asn His Arg Leu
117 100 105 110
119 Pro Glu Gly His Pro Leu Leu Glu Lys Arg Ala Glu Tyr Phe Arg His
120 115 120 125
122 Leu Arg Ser Leu Lys Ser Gln Gly Val Asn Arg Leu Ile
123 130 135 140
127 <210> SEQ ID NO: 3
128 <211> LENGTH: 1134
129 <212> TYPE: DNA
130 <213> ORGANISM: Babesia canis
132 <220> FEATURE:
133 <221> NAME/KEY: CDS
134 <222> LOCATION: (75)..(929)
136 <400> SEQUENCE: 3
137 gaattcggca cgagccctgc tatactgtgc ttgcaacta actccatcgt aataatttaa 60
139 tataataata aagg atg gag tcg aca tca aca acg acc aac ttt gtt gcc 110

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## RAW SEQUENCE LISTING

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140		Met	Glu	Ser	Thr	Ser	Thr	Thr	Thr	Asn	Phe	Val	Ala				
141		1				5					10						
143	gag	aac	cgt	ccc	acc	ttt	ggt	gag	acg	ttt	gat	gtg	atg	agg	gaa	gct	158
144	Glu	Asn	Arg	Pro	Thr	Phe	Gly	Glu	Thr	Phe	Asp	Val	Met	Arg	Glu	Ala	
145		15					20				25						
147	ttg	ctt	cgt	gta	aag	tcc	tct	gaa	cgc	ttg	gca	atg	ctc	aga	gcg	ctt	206
148	Leu	Leu	Arg	Val	Lys	Ser	Ser	Glu	Arg	Leu	Ala	Met	Leu	Arg	Ala	Leu	
149		30				35					40						
151	gca	gga	atg	tgc	ggt	cac	cgc	gtc	ctt	cct	ggc	act	ggt	gct	tct	gcg	254
152	Ala	Gly	Met	Cys	Gly	His	Arg	Val	Leu	Pro	Gly	Thr	Gly	Ala	Ser	Ala	
153	45				50					55					60		
155	ata	gcg	gca	acg	gta	acc	cca	aag	ggg	gct	tcg	atg	aag	ctt	aaa	cca	302
156	Ile	Ala	Ala	Thr	Val	Thr	Pro	Lys	Gly	Ala	Ser	Met	Lys	Leu	Lys	Pro	
157				65					70				75				
159	ccg	cgt	ccg	cag	tca	acg	aag	tct	ccg	gag	ctc	agg	gag	ctg	tca	cgg	350
160	Pro	Arg	Pro	Gln	Ser	Thr	Lys	Ser	Pro	Glu	Leu	Arg	Glu	Leu	Ser	Arg	
161				80				85				90					
163	aag	att	cgc	gaa	atg	aat	aag	act	ata	agt	cag	gaa	tca	gct	cgg	gta	398
164	Lys	Ile	Arg	Glu	Met	Asn	Lys	Thr	Ile	Ser	Gln	Glu	Ser	Ala	Arg	Val	
165		95					100				105						
167	aac	cac	cgg	ttg	ccg	gaa	ggc	cac	cct	ctc	tta	gag	aag	cgg	gca	gaa	446
168	Asn	His	Arg	Leu	Pro	Glu	Gly	His	Pro	Leu	Leu	Glu	Lys	Arg	Ala	Glu	
169		110				115					120						
171	tat	ttc	gtc	acc	tta	gat	ctc	tta	aga	gcc	aag	gag	tca	ata	gac	tca	494
172	Tyr	Phe	Val	Thr	Leu	Asp	Leu	Leu	Arg	Ala	Lys	Glu	Ser	Ile	Asp	Ser	
173	125				130					135					140		
175	tct	aag	aag	gca	cta	cgt	agg	tac	cgt	gcc	tct	atg	agg	aat	acg	aac	542
176	Ser	Lys	Lys	Ala	Leu	Arg	Arg	Tyr	Arg	Ala	Ser	Met	Arg	Asn	Thr	Asn	
177				145					150				155				
179	cga	cta	gtg	cac	aat	aga	cga	cca	gtt	cta	cca	aag	gta	gag	cct	gac	590
180	Arg	Leu	Val	His	Asn	Arg	Arg	Pro	Val	Leu	Pro	Lys	Val	Glu	Pro	Asp	
181				160				165				170					
183	tct	aat	cta	cca	ttc	ggc	cag	cga	cgg	agt	cgc	atg	aca	acg	tgg	aat	638
184	Ser	Asn	Leu	Pro	Phe	Gly	Gln	Arg	Arg	Ser	Arg	Met	Thr	Thr	Trp	Asn	
185		175				180				185							
187	ctt	aga	cca	cgc	cgg	acg	ggt	tat	ccg	tca	aat	ggt	act	ttg	gca	gtt	686
188	Leu	Arg	Pro	Arg	Arg	Thr	Gly	Tyr	Pro	Ser	Asn	Gly	Thr	Leu	Ala	Val	
189		190				195					200						
191	acg	gaa	ctc	ctg	atc	tcg	att	tat	aga	tca	aac	ttc	tac	acc	ttg	aag	734
192	Thr	Glu	Leu	Leu	Ile	Ser	Ile	Tyr	Arg	Ser	Asn	Phe	Tyr	Thr	Leu	Lys	
193	205				210					215					220		
195	gtg	gtc	gag	gaa	ggg	aga	tgt	acg	tgc	tgc	aac	acc	cat	aag	gag	caa	782
196	Val	Val	Glu	Glu	Gly	Arg	Cys	Thr	Cys	Cys	Asn	Thr	His	Lys	Glu	Gln	
197				225					230				235				
199	gct	ttg	cta	ctc	cta	tcc	ggt	tac	ctc	cag	cta	tat	cgt	gca	ctg	cac	830
200	Ala	Leu	Leu	Leu	Ser	Gly	Tyr	Leu	Gln	Leu	Tyr	Arg	Ala	Leu	His		
201				240				245				250					
203	tca	gtt	gga	agg	tct	gta	ttc	gta	gaa	tac	tgc	aaa	acc	agg	ata	tgc	878
204	Ser	Val	Gly	Arg	Ser	Val	Phe	Val	Glu	Tyr	Cys	Lys	Thr	Arg	Ile	Cys	

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205          255          260          265
207 gtc gag gca cgc ctc acc gga cta cgt ccg agg gtg acc cta acg ggc 926
208 Val Glu Ala Arg Leu Thr Gly Leu Arg Pro Arg Val Thr Leu Thr Gly
209          270          275          280
211 tgc tgaactaggt tcagccagcg cttcctgtga gtatgtcatt ccgggtcctt 979
212 Cys
213 285
215 cggggcccg ggcagtttcg actggtgtag gtttgcccta ctagagtact tgcgacgccg 1039
217 aagcgctcc gttcaaaaga acgcgcaagc cctagcagag aaatgcgagg gcatgactct 1099
219 tcgagtcaaa aaaaaaaaaa aaaaaaaaaac tcgag 1134
222 <210> SEQ ID NO: 4
223 <211> LENGTH: 285
224 <212> TYPE: PRT
225 <213> ORGANISM: Babesia canis
227 <400> SEQUENCE: 4
228 Met Glu Ser Thr Ser Thr Thr Thr Asn Phe Val Ala Glu Asn Arg Pro
229 1 5 10 15
231 Thr Phe Gly Glu Thr Phe Asp Val Met Arg Glu Ala Leu Leu Arg Val
232 20 25 30
234 Lys Ser Ser Glu Arg Leu Ala Met Leu Arg Ala Leu Ala Gly Met Cys
235 35 40 45
237 Gly His Arg Val Leu Pro Gly Thr Gly Ala Ser Ala Ile Ala Ala Thr
238 50 55 60
240 Val Thr Pro Lys Gly Ala Ser Met Lys Leu Lys Pro Pro Arg Pro Gln
241 65 70 75 80
243 Ser Thr Lys Ser Pro Glu Leu Arg Glu Leu Ser Arg Lys Ile Arg Glu
244 85 90 95
246 Met Asn Lys Thr Ile Ser Gln Glu Ser Ala Arg Val Asn His Arg Leu
247 100 105 110
249 Pro Glu Gly His Pro Leu Leu Glu Lys Arg Ala Glu Tyr Phe Val Thr
250 115 120 125
252 Leu Asp Leu Leu Arg Ala Lys Glu Ser Ile Asp Ser Ser Lys Lys Ala
253 130 135 140
255 Leu Arg Arg Tyr Arg Ala Ser Met Arg Asn Thr Asn Arg Leu Val His
256 145 150 155 160
258 Asn Arg Arg Pro Val Leu Pro Lys Val Glu Pro Asp Ser Asn Leu Pro
259 165 170 175
261 Phe Gly Gln Arg Arg Ser Arg Met Thr Thr Trp Asn Leu Arg Pro Arg
262 180 185 190
264 Arg Thr Gly Tyr Pro Ser Asn Gly Thr Leu Ala Val Thr Glu Leu Leu
265 195 200 205
267 Ile Ser Ile Tyr Arg Ser Asn Phe Tyr Thr Leu Lys Val Val Glu Glu
268 210 215 220
270 Gly Arg Cys Thr Cys Cys Asn Thr His Lys Glu Gln Ala Leu Leu Leu
271 225 230 235 240
273 Leu Ser Gly Tyr Leu Gln Leu Tyr Arg Ala Leu His Ser Val Gly Arg
274 245 250 255
276 Ser Val Phe Val Glu Tyr Cys Lys Thr Arg Ile Cys Val Glu Ala Arg
277 260 265 270

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279 Leu Thr Gly Leu Arg Pro Arg Val Thr Leu Thr Gly Cys
280      275      280      285
284 <210> SEQ ID NO: 5
285 <211> LENGTH: 90
286 <212> TYPE: DNA
287 <213> ORGANISM: Babesia canis
289 <400> SEQUENCE: 5
290 ggatcctaatacgcactcactatagggagac caccatggag tcgacatcaa caacgaccaa 60
291 ctttgttgcc gagaaccgtc ccacctttgg 90
294 <210> SEQ ID NO: 6
295 <211> LENGTH: 24
296 <212> TYPE: DNA
297 <213> ORGANISM: Babesia canis
299 <400> SEQUENCE: 6
300 gacgtttgat gtgatgaggg aagc 24
303 <210> SEQ ID NO: 7
304 <211> LENGTH: 21
305 <212> TYPE: DNA
306 <213> ORGANISM: Babesia canis
308 <400> SEQUENCE: 7
309aatgacatac tcacaggaag c 21
312 <210> SEQ ID NO: 8
313 <211> LENGTH: 20
314 <212> TYPE: DNA
315 <213> ORGANISM: Babesia canis
317 <400> SEQUENCE: 8
318atgagtctat tgactccttg 20
321 <210> SEQ ID NO: 9
322 <211> LENGTH: 21
323 <212> TYPE: DNA
324 <213> ORGANISM: Babesia canis
326 <400> SEQUENCE: 9
327agggagctgt cacggaagat t 21
330 <210> SEQ ID NO: 10
331 <211> LENGTH: 21
332 <212> TYPE: DNA
333 <213> ORGANISM: Babesia canis
335 <400> SEQUENCE: 10
336atgaggaatt cgaaccgact a 21
338 <210> SEQ ID NO: 11
339 <211> LENGTH: 74
340 <212> TYPE: DNA
341 <213> ORGANISM: Babesia canis
343 <400> SEQUENCE: 11
344gcagaatatt ttcgtcacct tagatctctt aagagccaag gagtcaatag actcatctaa 60
345gaaggcacta cgta 74
347 <210> SEQ ID NO: 12
348 <211> LENGTH: 24
349 <212> TYPE: DNA

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**VERIFICATION SUMMARY**

DATE: 02/13/2006

PATENT APPLICATION: US/10/087,573B

TIME: 10:56:07

Input Set : E:\Substitute Seq Listing I- 2001.004 US.txt

Output Set: N:\CRF4\02132006\J087573B.raw